Clinical Image

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Perichondritis: a case of swollen ear

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A 72-year-old man with a medical history of hypertension and colon cancer (in remission) presented to the emergency department in January 2022 because his wife noticed that his right ear was diffusely swollen and red for several hours. The patient recalled that he had a subjective fever 3 days prior that resolved without intervention and that he had since he had a COVID-19 test, which was negative. He states that he is unsure of what may have caused the swelling and states that it causes him minimal to no discomfort. He denies having fevers, chills, congestion, throat pain, hoarseness, difficulty swallowing, difficulty hearing, earache, or drainage. He notes that he had bees in his backyard but did not recall being stung. A physical examination showed that his tympanic membranes were clear, and he had mild diffuse swelling and erythema to the right ear. There is minimal warmth noted. He has minimal tenderness over the right helix without any signs of fluctuance to indicate underlying abscess. His examination was otherwise normal. The patient was provided with a 7-day course of 500 mg ciprofloxacin by mouth twice a day as well as ear, nose, and throat (ENT) follow-up and return precautions in the case of persistence of symptoms or development of a fever, worsening erythema, increased pain, or vomiting. Photographs were obtained, as shown in Figure 1.

Perichondritis is an infection of the connective tissue surrounding the cartilage of the outer ear. The perichondrium is a layer of dense connective tissue that surrounds the cartilage. The layer itself has a scanty blood supply, making it particularly susceptible to infection secondary to trauma that elevate the layer off the cartilage [1]. Although most causes preceding the condition include minor trauma, burns, and ear piercings, damage to the cartilage is not a prerequisite for the infection. However, many cases have been linked to chondral ear piercing. Other notable associations have linked perichondritis as a presentation by disease processes marked by immunosuppression including diabetes mellitus (DM) as well as non-Hodgkin's lymphoma (NHL) [1, 2]. The most common organism responsible is *Pseudomonas aeruginosa*, which was identified in as many as 95% of cases. Other causes include *Staphylococcus aureus* as well as *Escherichia coli*. The diagnosis of perichondritis is clinical. Patients will most likely note circumferential swelling and redness of the outer portions of the ear. This may be accompanied by a dull pain worsened by palpation, although its presence is not mandatory. The lobule often remains unaffected. In particular, the clinical examination should note whether or not there is an area of fluctuance or abscess as well as the presence of tenderness over the mastoid process, in addition to extension to involve the face, orbits, or middle ear. A thorough otologic examination should be performed to encompass a differential to include other possible causes to optimally target the treatment (otitis externa, otitis media, eczema, psoriasis, malignant otitis media, polychondritis). Necrosis secondary to this infection may lead to cosmetic deformity, and if blood collects under the elevated cartilage, it may form organized hard scar tissue to create a permanent structural deformity (also known as cauliflower ear) [2–4].

Management consists of antipseudomonal antimicrobial therapy with consideration of incision and drainage (I&D) by an ENT specialist in the case of a co-existing abscess. Oral antibiotic therapy with fluoroquinolones, such as ciprofloxacin, on an outpatient basis is appropriate; however, local antibiograms should guide therapy. Some patients may require inpatient intravenous therapy if outpatient therapy fails or if there is a high concern for cosmetic complications such as in the pediatric population. Fluoroquinolones could also be utilized safely in a pediatric population as long as there is adequate outpatient follow-up for treatment response and adverse events (i.e., musculoskeletal) [1, 3, 4]. Surgical incision or wound debridement should be performed if antibiotic therapy fails, if there is the presence of an abscess, or if there is concern for a cosmetic complication. Debridement can eradicate the inflammatory foci and expedite the recovery of the disease process [5].

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Figure 1: This 72-year-old man's right ear demonstrates perichondritis with diffuse swelling and erythema.

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References

1. Prasad HK, Sreedharan S, Prasad HS, Meyyappan MH, Harsha KS. Perichondritis of the auricle and its management. J Laryngol Otol 2007;121:530–4.
2. Rivera-Morales MD, Rodríguez-Belén JL, Vera A, Ganti L. Perichondritis: not all ear pain is otitis. Cureus 2020;12:e11141.
3. Khan N, Cunning N. Pinna perichondritis [Online]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK572081 Updated June 5, 2022 [Accessed 21 Aug 2022].
4. Pescatore R. Perichondritis: not just simple cellulitis. REBEL EM – emergency medicine blog; 2017. Available from: https://rebelem.com/perichondritis-not-just-simple-cellulitis [Accessed 21 Aug 2022].
5. Forozidou E, Poutoglidis A, Tsetsos N, Kilmpasanis A, Fyrmpas G. Surgery as a last resort for persistent auricular perichondritis. Ear Nose Throat J 2021:1455613211038343. https://doi.org/10.1177/01455613211038343.